

Appl. No. 10/720,919

Amdt. dated March 31, 2009

Reply to Office action of November 17, 2008

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:.

Claim 1 (Currently amended). A nursery irrigating system comprising:

- (a) a remotely placed water storage tank connected to at least one plant tray with an overhead pipe system;
- (b) the overhead pipe system having a main delivery pipe connected to the at least one plant tray in order to deliver to at least one root ball of at least one plant in the at least one plant tray without direct water contact with any leaf of the at least one plant and remove water from the at least one plant tray;
- (c) the nursery irrigating system being easily disassembled and reconfigured;
- (d) a controller allowing for unattended system operation;
- (e) the remotely placed water storage tank having the delivery pipe connected to a centrifugal pump; ~~centrifugal pump; and~~
- (f) the centrifugal pump providing force to move water

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into the overhead ~~pipe system~~ pipe system; and  
(g) a check valve being mounted between the overhead  
pipe system and the at least one plant tray in  
order to avoid a back flow of water into the  
remotely placed water storage tank.

Claim 2 (Cancelled).

Claim 3 (Cancelled).

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Claim 4 (previously presented). The nursery irrigation system of Claim 1 further comprising:

- (a) a venturi vacuum pump to remove water also connected to the main delivery pipe;
- (b) the overhead pipe system having an ascending pipe connected between the main delivery pipe and the venturi vacuum pump;
- (c) the ascending pipe being connected between the main delivery pipe and the centrifugal pump;
- (d) the main delivery pipe being connected to a tray delivery assembly;
- (e) the tray delivery system feeding a supply of water to the at least one plant tray at the root ball of the at least one plant contained in the at least one plant tray from below the at least one plant tray; and
- (f) the tray delivery system removing the supply of water from the at least one plant tray.

Claim 5 (Currently amended). The nursery irrigation system of Claim 4 further comprising ~~a check valve~~ the check valve being mounted on the ascending pipe to prevent water from backflowing from the overhead pipe system into the storage tank.

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Claim 6 (Previously presented). The nursery irrigation system of Claim 5 further comprising at least one tee line in the main delivery pipe that feed water to the tray delivery assembly in order to furnish water to each of the at least one plant in a plant tray.

Claim 7 (Previously presented). The nursery irrigation system of Claim 6 further comprising a solenoid valve for the controller in the tray delivery assembly which can be remotely controlled in order to initiate or terminate the supply of water to the plant tray.

Claim 8 (Previously presented). The nursery irrigation system of Claim 7 further comprising:

(a) the solenoid valve connecting to the tray delivery assembly;

(b) the controller including the solenoid valve attached to a timer in order to allow for timed operation of the initiation and termination of the supply of water to the plant tray; and

(c) the controller providing timed control of the flow to and removal of water from the plant table.

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Claim 9 (Previously presented). The nursery irrigation system of Claim 8 further comprising:

(a) the venturi vacuum pump removing water from the plant tray;

(b) the tray delivery assembly including a tray drain assembly connected to a main drain assembly and into the storage tank;

(c) the main drain assembly being connected to the main delivery pipe; and

(d) the venturi vacuum pump sending water through the tray drain assembly into the main drain assembly on a return to the storage tank.

Claim 10 (Previously presented). The nursery irrigation system of Claim 9 further comprising a vacuum shut off valve cooperating with the centrifugal pump to allow water to flow on to the plant tray at the root ball and cooperating with the venturi vacuum pump to allow water to flow from the plant tray.

Claim 11 (Cancelled).

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Claim 12 (Currently amended). The nursery irrigation system of Claim 10 ~~Claim 11~~ further comprising an input line connecting the delivery pipe into the water storage tank.

Claim 13 (canceled).

Claim 14 (Previously presented). The nursery irrigation system of Claim 12 further comprising the controller having up to 60 timers each of the up to 60 timers being connected to a separate member in a group of the solenoid valve to have timed control of the flow and removal of water from the plant table.

Claim 15 (Previously presented). The nursery irrigation system of Claim 14 further comprising the tray drain assembly being easily disconnected from the main drain assembly and readily disassembled and reassembled.

Claim 16 (Previously presented). The nursery irrigation system of Claim 15 further comprising the tray delivery assembly being easily disconnected from the main delivery assembly and easily disassembled and reassembled.

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Claim 17 (Previously presented). The nursery irrigation system of Claim 16 further comprising a main delivery assembly being easily disassembled and reassembled.

Claim 18 (canceled).

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Claim 19 (withdrawn). A method for providing irrigation to at least one nursery of nursery plants comprising:

- (a) a remotely placed water storage tank connected to at least one plant tray with a piping system;
- (b) the piping system having a delivery pipe to deliver and remove water from the plant tray;
- (c) the storage tank having an outflow line connected to a centrifugal pump;
- (d) centrifugal pump being adapted to move the water into the main delivery assembly;
- (e) an interconnection between the main delivery assembly and the main drain assembly, allowing water to flow from the main delivery assembly into the venturi vacuum;
- (f) a check valve on the main delivery ascending pipe to prevent water from backflowing from the delivery pipes into the storage tank;
- (g) at least one tee line in the main delivery assembly that feed water to the tray delivery assembly for delivery to each plant tray;
- (h) a solenoid valve in the tray delivery assembly which can be remotely controlled to initiate and terminate the supply of water to the plant tray;
- (i) the solenoid valve in the tray delivery assembly being



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connected to a timer to allow for timed operation of the initiation and termination of the supply of water to the plant tray;

- (j) the use of a Venturi Vacuum to remove water from the plant tray through the tray drain assembly and the main drain assembly and into the storage tank;
- (k) a vacuum shutoff valve acting under positive pressure from the centrifugal pump to allow water to flow on to the plant tray and acting under vacuum from the venturi vacuum to remove water from the plant tray;
- (l) a check valve on the tray drain pipe preventing backflow of water from the main drain pipe into the tray drain assembly;
- (o) an input line from the main drain line into the water storage tank;
- (p) a timed control of the flow and removal of water from the plant table utilizing the timers hooked to the solenoid valves;
- (q) a tray drain assembly that can be easily disconnected from the main drain assembly and readily disassembled and reassembled;
- (s) a tray delivery assembly that can be easily disconnected from the main delivery assembly and easily disassembled

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and reassembled; and

- (t) a main delivery assembly that can be easily disassembled and reassembled.

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Claim 20 (withdrawn). A method for providing irrigation to at least one nursery of nursery plants comprising:

- (a) providing a remotely placed water storage tank connected to at least one plant tray with a piping system;
- (b) passing water through a delivery pipe in the piping system to deliver or remove water from the plant tray;
- (c) providing an outflow line for the storage tank, the outflow line being connected to a centrifugal pump;
- (d) moving the water with the centrifugal pump into the main delivery assembly;
- (e) connecting the main delivery assembly and the main drain assembly in order to allow a water flow from the drain pipe into the delivery pipe;
- (f) preventing backflow from the delivery pipes into the storage tank as desired;
- (g) providing a tee line to the tray delivery assembly for delivery of water to each plant tray from below the plant tray;
- (h) remotely controlling the tray delivery assembly with a solenoid valve to initiate or to terminate the supply of water to the plant tray;
- (i) timing the solenoid valve in the tray delivery assembly allow for timed operation of the initiation and

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- termination of the supply of water to the plant tray;
- (j) removing water from the plant tray through the tray drain assembly and the main drain assembly and into the storage tank with venturi vacuum;
- (k) applying a vacuum shutoff valve acting under positive pressure from the centrifugal pump to allow water to flow on to the plant tray and acting under vacuum from the venturi vacuum to remove water from the plant tray;
- (l) providing a check valve on the tray drain pipe to prevent backflow of water from the main drain pipe into the tray drain assembly;
- (o) providing an input line from the main drain line into the water storage tank;
- (p) timing the solenoid valves to control the flow and removal of water from the plant table;
- (q) providing a simplified connecting device for the tray drain assembly that can be easily disconnected from the main drain assembly and readily disassembled and reassembled;
- (s) providing the a tray delivery assembly that can be easily disconnected from the main delivery assembly and easily disassembled and reassembled; and
- (t) providing a main delivery assembly that can be easily

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disassembled and reassembled.

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Claim 21 (Previously presented). A nursery irrigating system adapted to feed water to at least one root ball of at least one plant in at least one plant tray comprising:

- a remotely placed water storage tank connected to at least one plant tray with an overhead pipe system;

- the overhead pipe system having a main delivery pipe to deliver and remove water from the at least one plant tray;

- the nursery irrigating system being easily disassembled and reconfigured;

- a controller allowing for an unattended operation of the overhead pipe system;

- the remotely placed water storage tank having the delivery pipe connected to a centrifugal pump; and

- the centrifugal pump providing force to move water into the overhead pipe system;

- a venturi vacuum pump to remove water also connected to the main delivery pipe;

- the overhead pipe system having an ascending pipe connected between the main delivery pipe and the venturi vacuum pump;

- the ascending pipe being connected between the main delivery pipe and the centrifugal pump;

- the main delivery pipe being connected to a tray

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delivery assembly;

the tray delivery system feeding a supply of water through the main delivery pipe to the at least one plant tray at the root ball of at the least one plant contained in the at least one plant tray from below the at least one plant; and

the tray delivery system removing the supply of water from the at least one plant tray through the main delivery pipe.

Claim 22 (Previously presented). The nursery irrigation system of Claim 21 further comprising a check valve mounted on the ascending pipe to prevent water from backflowing from the overhead pipe system into the storage tank.

Claim 23 (Previously presented). The nursery irrigation system of Claim 22 further comprising at least one tee line in the main delivery pipe that feed water to the tray delivery assembly in order to furnish water to each of the at least one plant in a plant tray.

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Claim 24 (Previously presented). The nursery irrigation system of Claim 23 further comprising a solenoid valve for the controller in the tray delivery assembly which can be remotely controlled and in order to initiate or terminate the supply of water to the plant tray.



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Claim 25 (Previously presented). The nursery irrigation system of Claim 24 further comprising:

the solenoid valve being connected to the tray delivery assembly;

the controller including the solenoid valve attached to a timer in order to allow for timed operation of the initiation and termination of the supply of water to the plant tray;

the controller providing timed control of the flow to and removal of water to the plant table;

the venturi vacuum pump removing water from the plant tray;

the tray delivery assembly including a tray drain assembly connected to a main drain assembly and into the storage tank;

the main drain assembly being connected to the main delivery pipe; and

the venturi vacuum pump sending water through the tray drain assembly into the main drain assembly on a return to the storage tank.

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Claim 26 (Previously presented). The nursery irrigation system of Claim 9 further comprising:

a vacuum shut off valve cooperating with the centrifugal pump to allow water to flow on to the plant tray at the root ball and cooperating with the venturi vacuum pump to allow water to flow from the plant tray;

a check valve in the main delivery pipe preventing a backflow of water from the main drain pipe into the tray drain assembly;

an input line connecting the main drain line to the water storage tank;

the controller having up to 60 timers each of the up to 60 timers being connected to a separate member in a group of the solenoid valve to have timed control of the flow and removal of water from the plant table;

the tray drain assembly being easily disconnected from the main drain assembly and readily disassembled and reassembled;

the tray delivery assembly being easily disconnected from the main delivery assembly and easily disassembled and reassembled; and

the main delivery assembly being easily disassembled and reassembled.